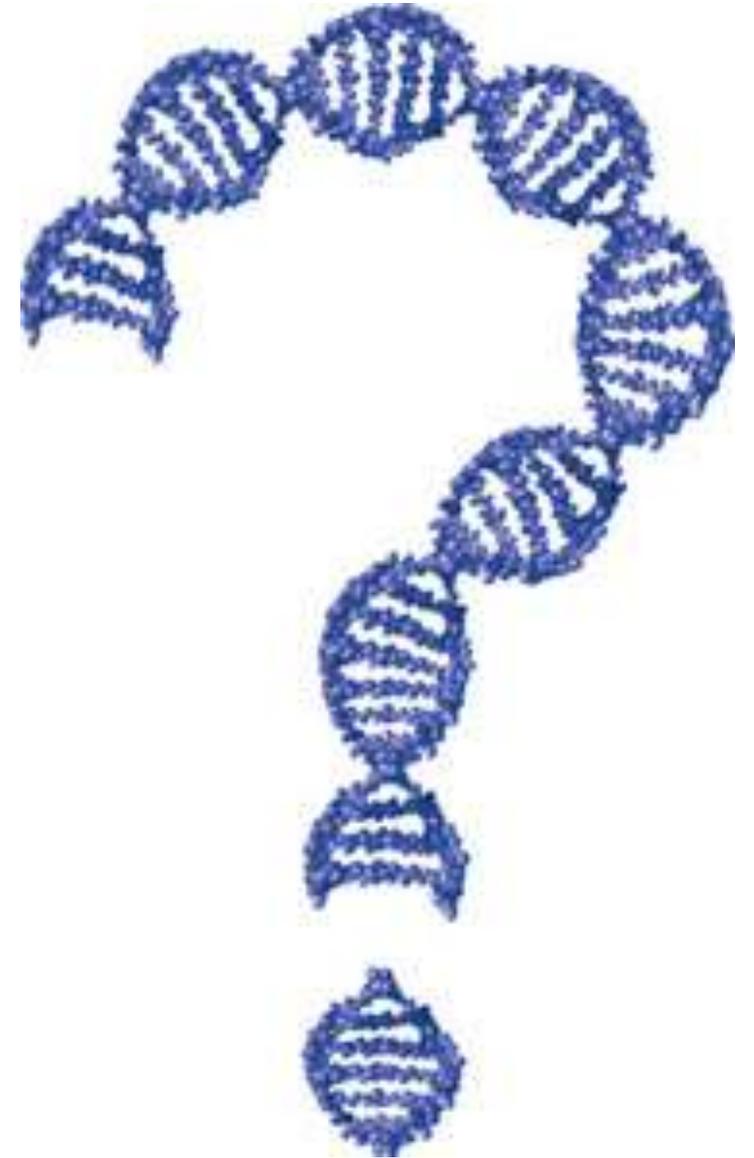


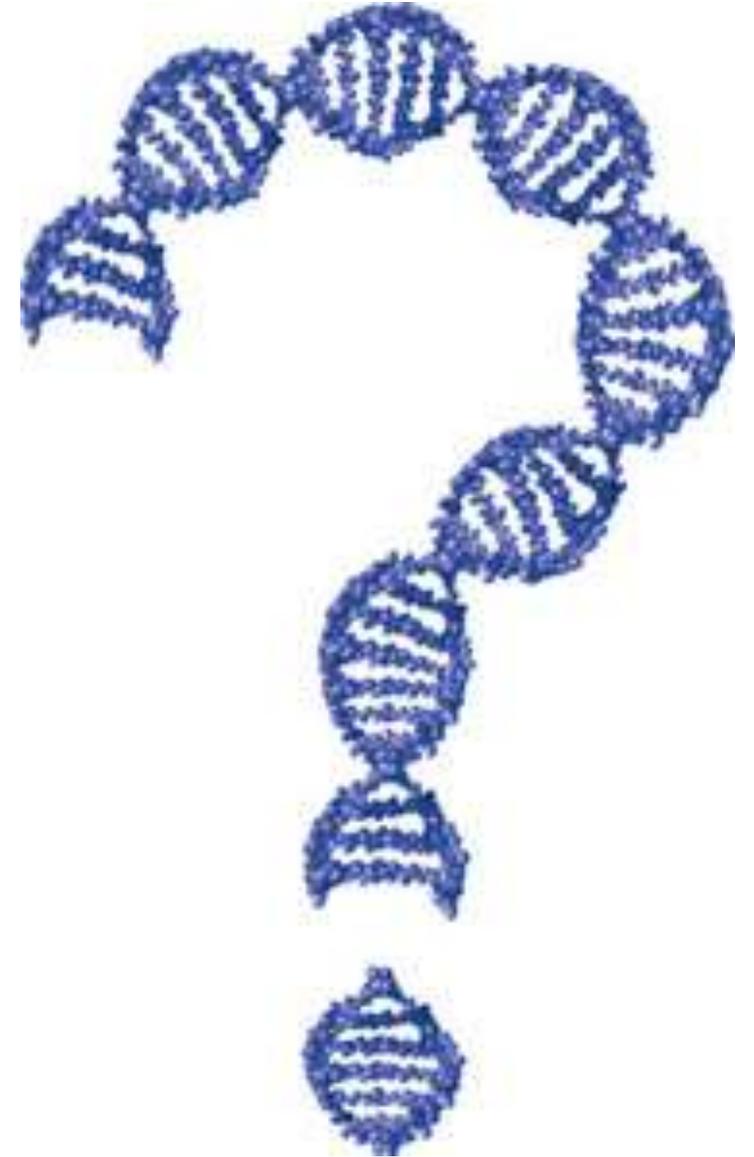
Likelihood Ratios

- Can the speakers further discuss confidence interval estimation for LR_s and share their opinions on whether they should be presented in reports and testimony?



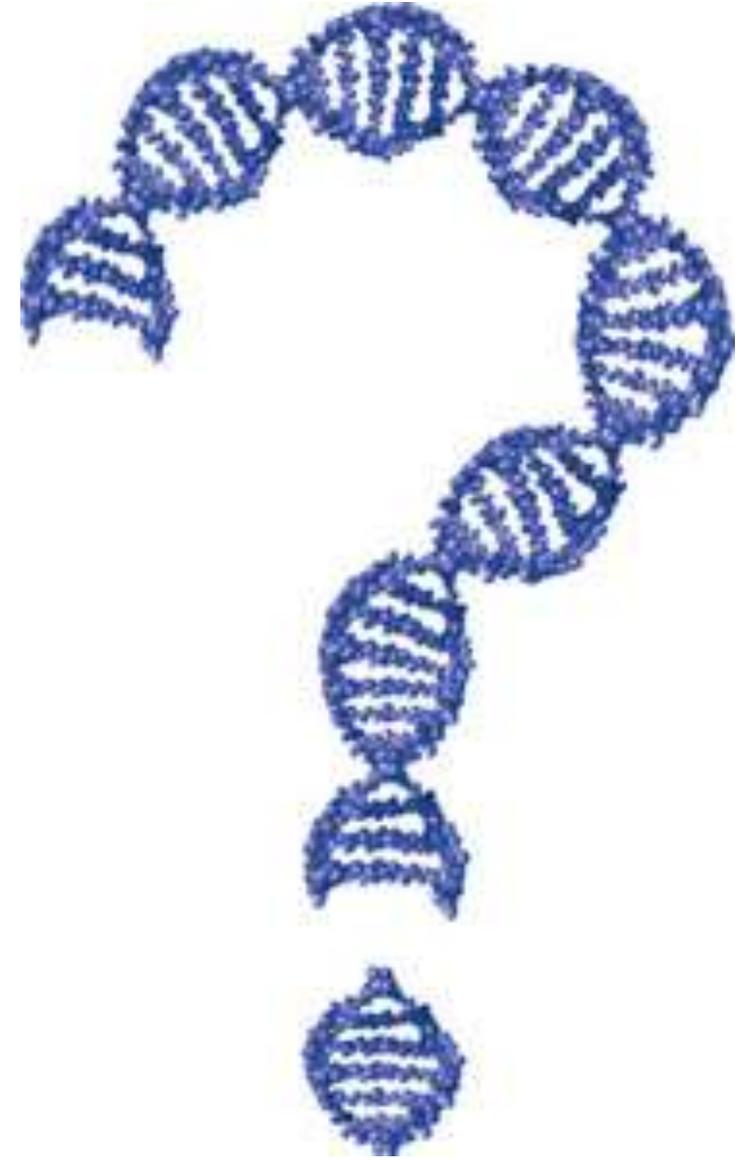
Activity Propositions

- For Joel: When testifying to the probability of competing scenarios as to how DNA came to be on an exhibit, are you using SWGDAM LR phrasing (limited/strong, etc.) or are you being more vague? If you're using specific language, how do you come up with your numbers (assigning your outcome probabilities)?



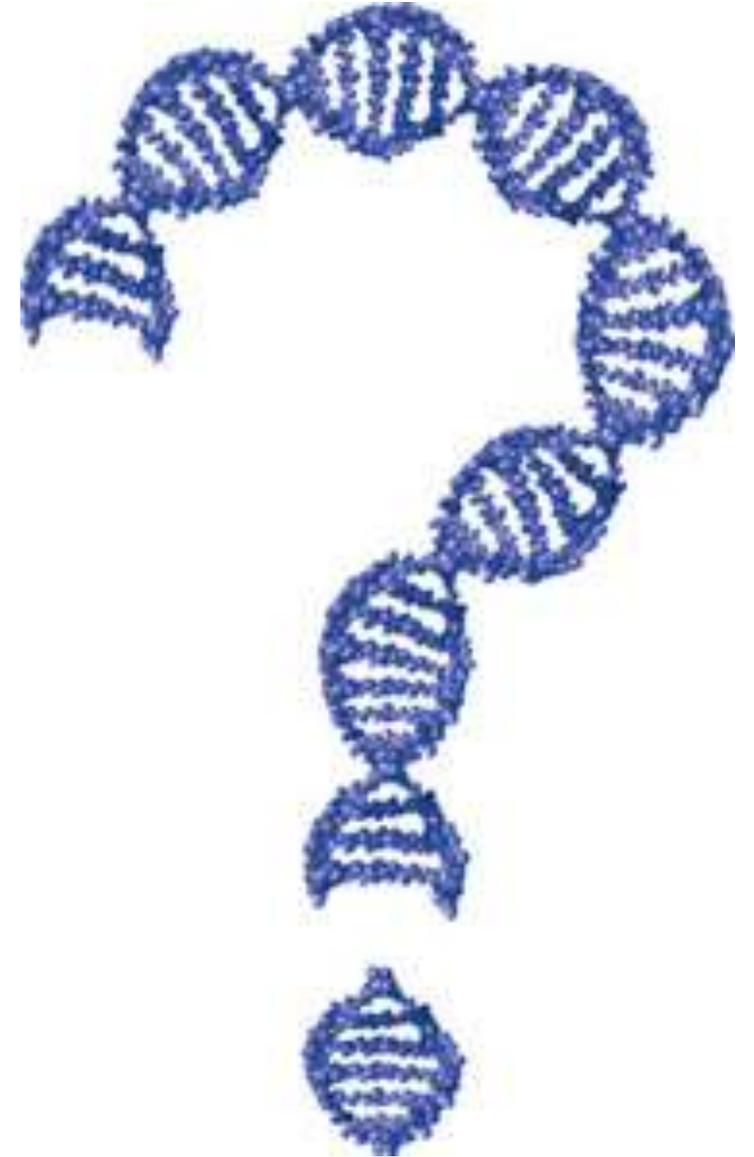
Continuing Education

- How do we improve continuing education?



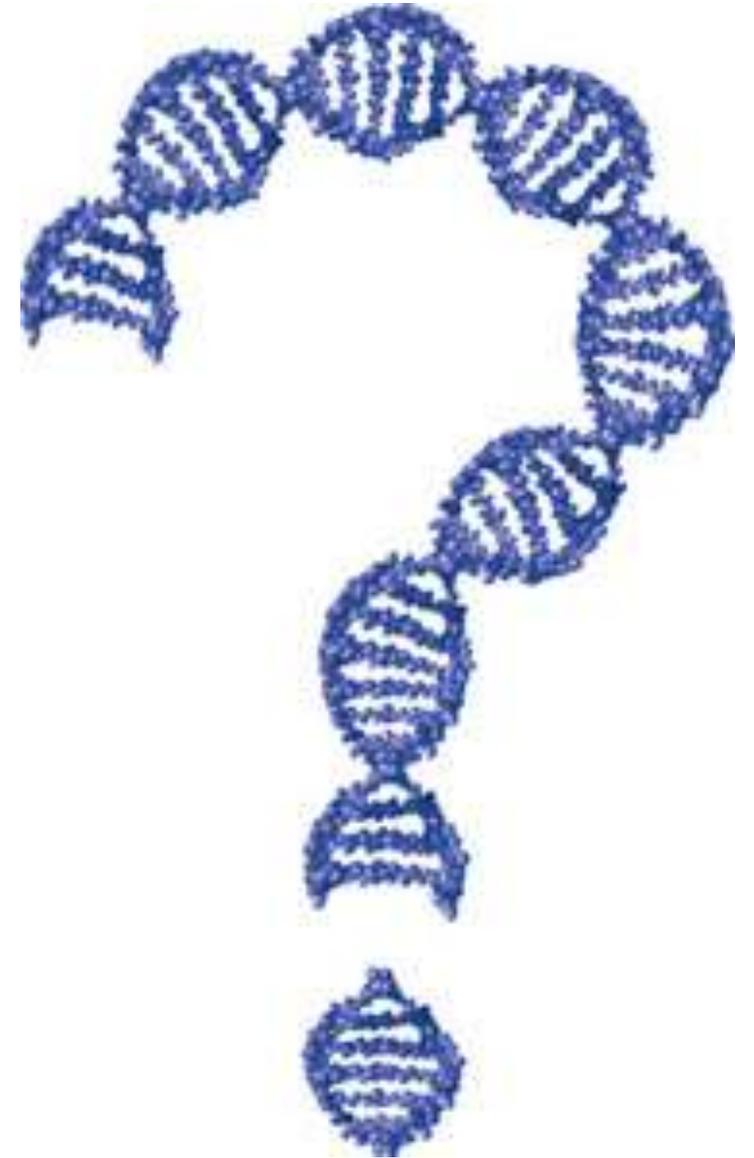
DNA Transfer

- For Sheila: How can expectation of transfer for incorporated into SOPs?



SOPs

- For Jen: What does an SOP that requires a deconvolution of genotypes look like?



Next Steps, Q&A, Summary

John M. Butler and Melissa K. Taylor
National Institute of Standards and Technology

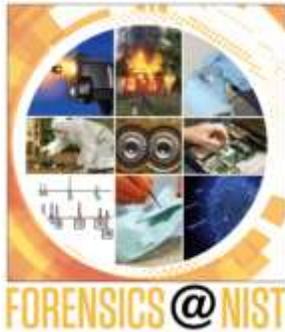


NIST Forensic Science Activities

Conduct Research and Collaborate

Intramural Research

DNA
Digital
Fingerprints
Firearms
Footmarks
Statistics
Toxins
Trace



Extramural Research

funding a NIST Center of Excellence in Forensic Science (CSAFE: since 2014)

1920s - present

Partner with Community to Strengthen Policies and Practices

National Commission on Forensic Science (NCFS) with DOJ

2013 - 2017



2013 - present

Convene Meetings to Examine Issues



Human Factors Working Groups (with NIJ)

2009 - present

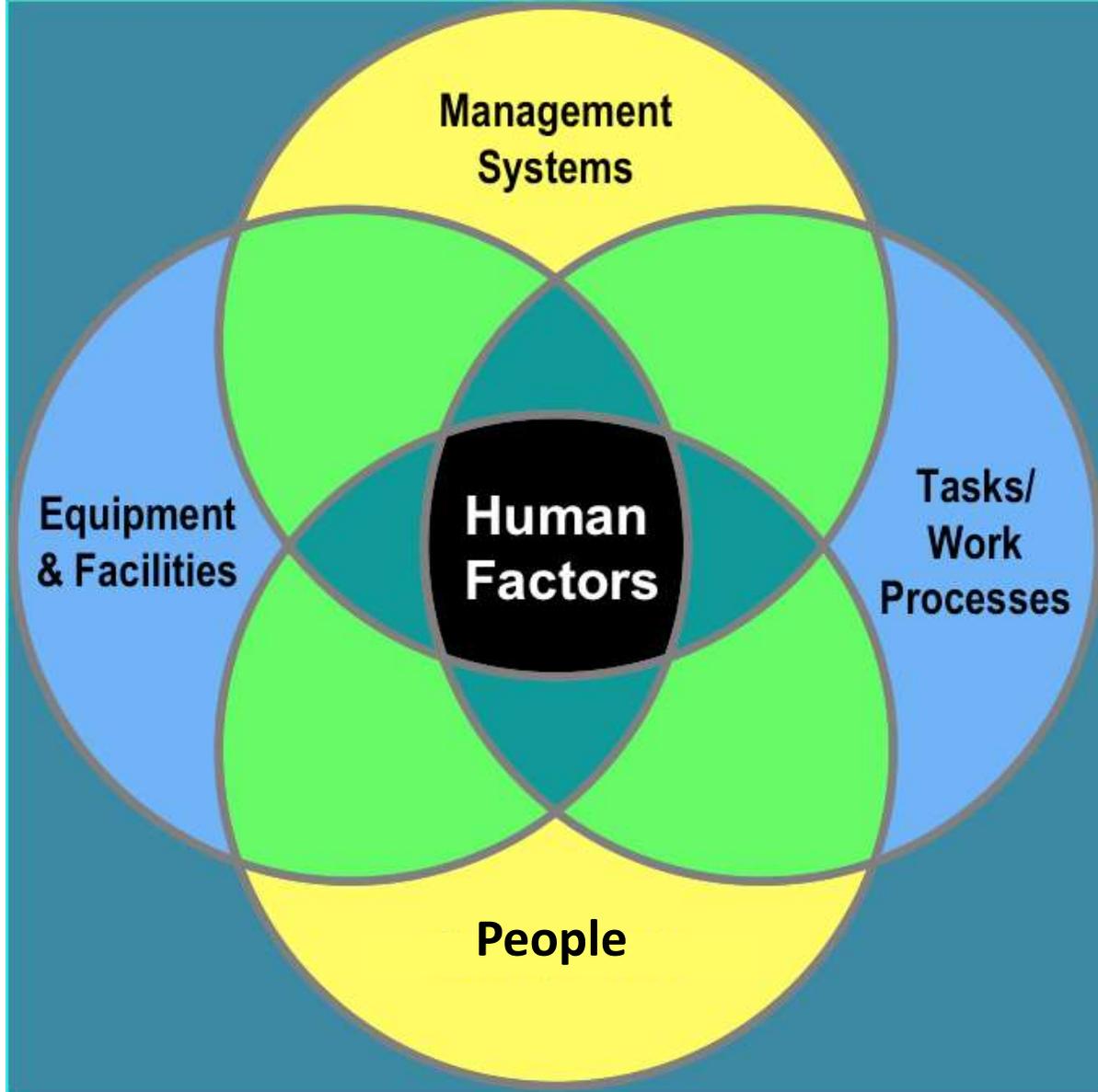
Explore Scientific Foundations

Initial efforts with DNA mixture interpretation and bitemark analysis



2017 - present

Human Factors Defined



The scientific discipline concerned with the **understanding of interactions among humans and other elements of a system.**

Expert Working Group Series on Human Factors in Forensic Sciences



Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach

The Report of the Expert Working Group on Human Factors in Latent Print Analysis

February 2012



Forensic Handwriting Examination and Human Factors: Improving the Practice Through a Systems Approach

JANUARY | 2018



Looking Through a Human Factors Lens

Do we understand the questions we're being asked?

Are we answering the right questions?

Do we have the right analytical methods/technology?

Can we properly communicate what was done?

Do we have the right people,

- with the right skills ...
- in the right roles ...
- with the right information ...
- and the right role models ...
- with the right motivation to do the job?

Are the lab policies appropriate for the task?

Report Topics

- Understanding DNA Mixture Analysis - Process Map
- Interpretation
- Education and Training
- Technology
- Work Environment
- Reporting
- Testimony
- Quality Control & Quality Assurance
- Management

Highlighting Variability in Practice: Creating a DNA Process Map

1000 – Sample Selection

Collection

Characterization

2000 – Sample Preparation

Extraction

Quantification

Amplification

3000 – Genotyping

Separation and
Detection

Genotyping

4000 – Interpretation

Assess Quality
of EPG

Designate Allele
Peaks

Identify the
Number of
Potential
Contributors

Estimate the
Relative Ratio of
the Individuals
Contributing to
the Mixture

Consider All
Possible
Genotype
Combinations

Compare
Reference
Samples

5000 - Reporting

Statistics

Report

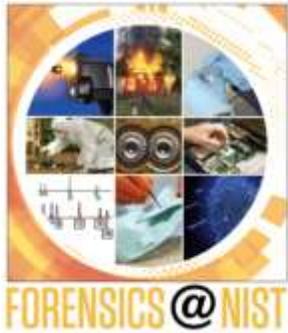
Terminate
Case

Potential NIST Forensic Science Activities

Conduct Research and Collaborate

Intramural Research

DNA
Digital
Fingerprints
Firearms
Footmarks
Statistics
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2017 - present

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Thank you for your attendance and participation!

Thanks

- Congress and the President for writing and signing a budget last Friday
 - We did not know until 3pm last Friday that the NIST employees were permitted to attend
- All of you for coming – on President's Day
- Our presenters

- We will put slides up on STRBase soon (hopefully next week)